ON A VARIETY

OF

FALSE ANEURISM.

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[Read to the Royal Medical and Chirurgical Society, March 8th, 1842. Printed at the Author's expense for distribution among the members.]

My attention has lately been particularly directed to the subject of Communications between large blood-vessels and the cysts of abscesses, in consequence of having, a few weeks ago in my hospital practice, met with a remarkable case in which the carotid artery opened into a large abscess in the neck. My conviction has always been with those who hold that "there is often more of instructiveness in an unfortunate case than in a fortunate one;" and, accordingly, I venture to lay the particulars of the case referred to, before the Society, as not altogether devoid of practical importance, and therefore of interest to the members. I have referred to other cases in confirmation of my views, and

have thrown together a few remarks suggested by a consideration of the subject generally.

Hæmorrhage from the cyst of an abscess, to a slight extent, often follows the evacuation of its purulent contents, more especially when the operator evinces an anxiety to empty the cavity as far as he possibly can, by forcibly squeezing and compressing its sides. The blood is then furnished by the vessels of the lining membrane, whose connexions with its bed are broken up ; the bleeding in other instances is attributable to the loss by the vessels of their accustomed support. In either way the cavity is filled with blood, which may ooze from the opening for a time ; but coagula are formed by and by, and breaking down at last, are discharged with the secreted pus. Bleeding from abscesses may also take place from vessels, arterial or venous, wounded in the operation of opening them. All such effusions are in general speedily arrested, by attention to position, and by pressure applied over the opening or to the surface of the abscess. Larger arterial trunks on which abscesses encroach, are generally well protected by a deposit of coagulable and organised lymph around and about them, so that hæmorrhage from them is comparatively rare ; the nerves, on the contrary, are often stripped of their cellular sheaths, and their fibrillæ are macerated and detached. Occasionally, however, all the parts in the neighbourhood of an abscess appear to be dissected, the coats of arteries among these becoming de-

nuded by the extension and pressure of the purulent deposit. The requisite supply of blood to the coats of the vessels is thus diminished or entirely cut off, and as a consequence, ulceration and sloughing, with perforation from without, ultimately occur. This has happened in some instances before the matter had wrought its way to the surface, and before any opening had been made by the surgeon. In other cases, again, the vessel has given way some time after the pus had been evacuated. In the cases which have come under my notice, the abscess has lain beneath the vessel, which has been pushed forwards upon the cyst, and put very much upon the stretch. This stretching of the vessel, together with the natural tendency of purulent matter to the surface, may so far account for the giving way of its parietes. Under any circumstances such an occurrence as the perforation of a large artery by ulceration is very alarming, and calls for the best directed and most energetic efforts of the attendants to prevent an immediately fatal result. But the existence of a communication be-between a large vessel and the cyst of an unopened abscess, it may readily be conceived, cannot always be easily ascertained. The history and progress of the swelling, indeed, its situation, form, &c., will all generally be very different from those of a true aneurism; still there may be no signs, or if any, very slight ones, of the existence of a communication with an arterial trunk. In cases of large abscesses, the contents of which have been partially

evacuated, and into which blood is afterwards poured, so as to distend the sac enormously, the surgeon may perhaps, for a time, be led to think that the bleeding is from some inconsiderable branch, and may only at last be convinced of the danger to which his patient is exposed, after repeated hæmorrhages have taken place from the opening. Perhaps the blood escapes at first from a minute aperture in the vessel, and drains but slowly into the cyst. It coagulates, and by slight pressure on the opening, the flow is arrested. But as the ulceration extends and the opening enlarges, or as the patient rallies and the circulation becomes energetic after each renewal of hæmorrhage, the bleedings occur more frequently, and in a more alarming way, and cease only upon the patient falling into a state of complete syncope, or upon accurate pressure being made over the trunk of the vessel from which the blood is flowing, at a distance from the disease. The first case, the particulars of which I shall detail from the records of the house, occurred a short time since in University College Hospital.

Case I.—G. A., æt. nine, had been a healthy infant, but about six years ago he suffered from severe illness, and was left in a very reduced state. About two months back he had a violent cough, together with considerable fever; at this time a small swelling was first observed in the neck, immediately below the right ear; this was merely fomented and poulticed. It increased gra-

dually and slowly until within three or four days of his admission into the North London Hospital, when its progress became more rapid and its shape irregular. He presented himself Oct. 20th to Mr. Liston, at the usual visiting hour, having a tumour at the angle of the jaw on the right side, extending backwards as far as the posterior border of the sterno-mastoid muscle, (the upper part of which was pushed forwards,) downwards to within an inch of the clavicle, and forwards to about half the length of the horizontal ramus of the lower jaw. It projected into the mouth between the arches of the palate, impeding in a great degree both respiration and deglutition. Its most prominent point was posteriorly and superiorly at the outer border of the sterno-mastoid. Indistinct fluctuation could be felt, and there was slight pulsation in it immediately over the carotid artery; but on grasping the sides of the tumour no pulsation could be discovered, nor could any be felt inside the mouth. Mr. Liston made a small puncture into the tumour under the impression that it contained matter; a gush of arterial blood followed the operation, and about four ounces were lost in a few seconds; the wound was closed by hare-lip pins and the twisted suture, and the bleeding thus checked. Mr. Liston determined to tie the carotid on the following day.

Oct. 21.—No hæmorrhage during the night, but cold was constantly applied, as the tumour seemed to be very tense. This morning the carotid

was tied. The patient being placed on the operating table, an incision about an inch and a half in length was made transversely over the sternal extremity of the clavicle, and another upwards, and at right angles to the first incision, over the trachea. A V shaped flap was turned upwards and outwards; the sternal attachment of the sterno-mastoid being exposed, was cut across; the muscle was very black, as if the sheath were occupied by effused blood. The sterno-hyoid and thyroid muscles were next exposed, after some dissection. A small vein was cut, which bled freely, but after a little time this hæmorrhage ceased without the application of a ligature. The muscles over the trachea were then cut across, and after a troublesome dissection the carotid was exposed a little above its origin from the innominata, and tied. The great difficulty of the operation arose from the necessary smallness of the incision. The tumour projected downwards so low in the neck that it was impossible to extend the incision upwards; and the artery, which appeared to be at a very great depth from the surfuce, was to be sought for at the bottom of a small hole. The flap was laid down, and retained by some isinglass plaster. The boy complained very little after the operation. The swelling very soon became firmer and less tense, and the movements of the jaw, which before were much restricted, were now more free and less painful. The pupil of the right eye, which before was contracted and partially insen-

sible to light, was now restored to its proper functions. The patient slept soundly all the night following the operation.

Oct. 25th.—The pins and twisted suture were removed to-day, and strips of isinglass plaster applied in their stead.

28th.—Some grumous blood escapes slowly from the opening in the tumour. The boy is cheerful and happy.

Nov. 2nd.—Since the last report, discharge of the same character has continued to ooze from the tumour, attended with an evident decrease in the size of the swelling; this is more especially apparent just under the jaw. The patient does not complain of any pain in the tumour. Simple water dressing is applied to the small ulcerated surface. The patient is allowed moderate diet; all liquids are taken cold. There is still a remarkable dilatation of the left pupil, and a contrary condition of that of the opposite eye.

Nov. 3rd.—Five P. M. A few minutes since, while the boy was eating a piece of bread, a sudden gush of arterial blood took place from the wound in the fore part of the neck, the ligature being still firm. The hæmorrhage was suppressed by plugging the wound with lint. A considerable quantity of blood was lost. Hæmorrhage returned six times after this; the last one left him in a state of perfect collapse, from which he never recovered, and on Nov. 5th he died at five P. M.

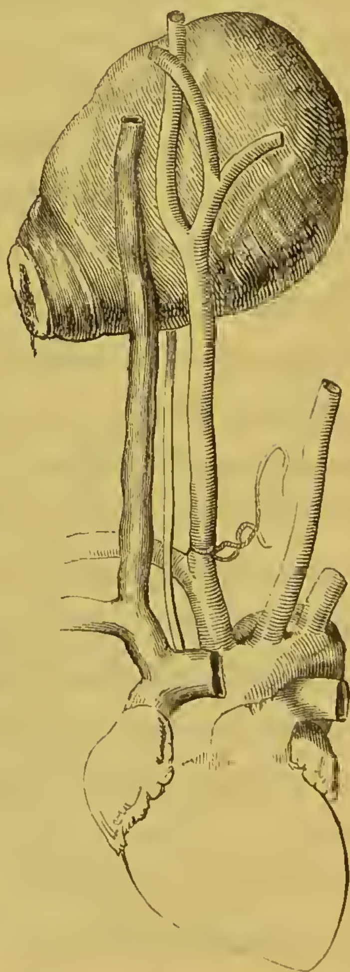
Sectio Cadaveris—Horas xxi *post Mortem.*

External appearances. There was still considerable fullness of the whole of the right side of the neck, but much less than shortly after the operation. Pressure caused a quantity of dark grumous blood to ooze from the tumour.

In conducting the examination, an incision was made along the mesial line from the symphysis of the jaw to about the middle of the sternum, another along the angle of the jaw to the mastoid process, and a third along the upper margin of the clavicle; the flap of skin thus included was then dissected up and turned backwards. A small quantity of blood was found to be extravasated in the superficial cellular tissue around the puncture. The superficial fascia was now raised, and the sterno-mastoid, together with the other muscles of the neck, were dissected down. The incision which was made in placing the ligature on the artery was found to have divided the sterno-hyoid and thyroid muscles, as well as part of the sterno-mastoid. The tissues around it were consolidated by effused lymph. The parotid gland appeared to extend lower down into the neck than usual, and along the anterior edge of the sterno-mastoid muscle were situated three lymphatic glands, each enlarged to about the size of a small walnut; the lower one extended to within a quarter of an inch of the superior extremity of the incision. These, with several smaller glands, almost entirely filled up the superior part of the triangle, the trachea being somewhat to the

left side, and the sterno-mastoid muscle to the right; the carotid artery in this situation was seen uncovered by the glands. The external jugular vein was found to cross the mastoid muscle in the ordinary situation, being about half an inch internal to the puncture, which was through the posterior fibres of the muscle. Just opposite to the angle of the jaw lay another enlarged lymphatic gland, somewhat larger than any that have been mentioned, and extending partly under the sterno-mastoid muscle. The whole of these parts were firmly matted together by a dense deposit of lymph. The clavicle was now cut through at about its external third, and the upper portion of the sternum was removed. The sterno-mastoid was then dissected upwards, but was found to be firmly adherent, at the point of puncture, to the tissue beneath. A portion was therefore left at this part, and the remainder of the muscle, into the substance of which a considerable quantity of blood had been effused, was removed. The enlarged glands, the sterno-hyoid and thyroid muscles, together with the deep fascia, were then removed, and the innominata, carotid, and sub-clavian arteries exposed. The ligature was found to have been placed close to the origin of the carotid from the innominata; it was not completely separated, a small portion of the external side of the artery still remaining entire. The proximal end of the vessel was quite open, and admitted a large-sized probe; there had been no attempt at the formation of a clot, or, if any had been formed, it must have been

expelled with the blood. The distal end of the vessel was sealed by a firm coagulum, and around the situation of the ligature was a considerable deposit of firm lymph. The arteries arose from the arch in the usual manner. The dissection in the superior part of the neck was now proceeded with. The parotid and sub-maxillary glands, &c., and the side of the lower jaw having been removed, a large tumour was brought into view, extending from the side of the trachea and pharynx, outwards as far as, or a little beyond, the external border of the sterno-mastoid; upwards to the base of the skull, and downwards to about an inch below the bifurcation of the carotid; behind, it was limited by the spine and its muscles. Over the anterior surface of the tumour could be traced the carotid artery, free to within three quarters of an inch of its point of division, where it became firmly connected with the swelling. Both the external and internal carotid were connected to the tumour for about an inch from their division: the internal, however, was the more intimately attached.



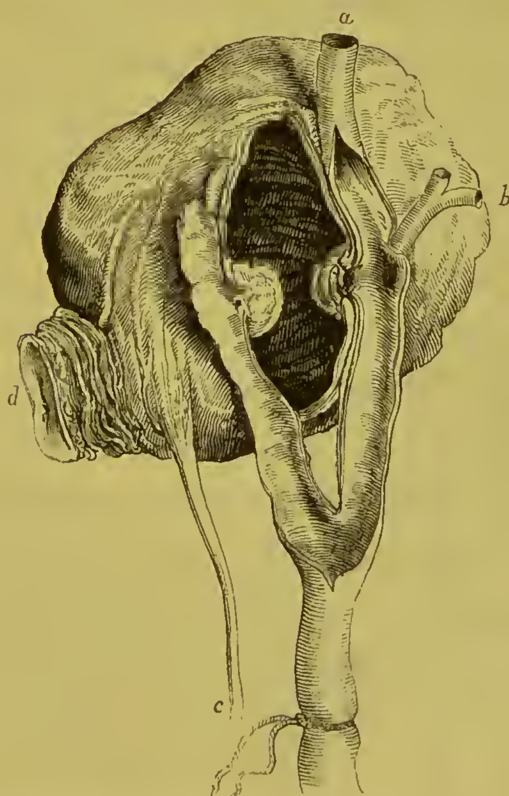
The internal jugular vein passed over the anterior aspect of the tumour, but the vagus nerve was found to issue from behind. Both the internal and external carotid were now cut through, the former at its entrance into the bony canal in the temporal bone, and the tumour was dissected from its situation, turned downwards, and, together with the heart and arteries, removed from the body.

An incision was then made into the posterior part of the tumour, which was found to contain a quantity of dark grumous blood, external to which was a thin layer of organized lymph which entirely lined the parietes of the cyst. A probe was passed down the internal carotid artery, and found to enter the cyst just opposite the division of the common carotid; this point was, however, obstructed, a mass of coagulable lymph almost entirely blocking up the entrance. The parietes of the tumour behind, were about a line or more in thickness, but on the outer side, on the aspect adjacent to the puncture, they were much thinner. They appeared to be composed of three layers differing in character, but organically connected together. The outermost layer consisted of condensed cellular tissue having portions of the surrounding structures attached to or imbedded in it. The middle layer, which was not so evident on the outer side of the tumour, was very dense and opaque, so that it appeared like a distinct white line on a section of the parietes of the tumour. The innermost layer was soft and pulpy, semi-transparent, and of a pale dirty red

colour; its inner aspect, forming the inner surface of the cyst, was smooth, and for the most part even; but in some points, and especially at the posterior part of the cyst, it presented a fasciculated appearance like the interior of the auricles of the heart, or of a fasciculated bladder, only not so well marked; it consisted, as I have said, of a flaky lymph-like substance throughout. Opposite the outer part of the tumour (where its parietes were thinnest) this substance was flocculent and broken, and contained patches of a bright yellow colour; here it was not distinctly laminated, and it adhered rather firmly to the middle layer of the cyst, but in other situations it was easily separable into laminæ, and was not so firmly adherent. The cavity of the cyst contained a quantity of grumous blood. The common carotid and the internal and external carotid were firmly attached to the front of the tumour. The opening by which the cyst had communicated with the artery, had been about three lines wide and two and-a-half lines long, and was situated at the bifurcation of the common carotid. It was now completely closed by a firm clot, in which no perforation was visible, so that the probe which had been passed down the internal carotid into the cavity, must have been forced either on one side of this clot or through it. On the side next the vessel, the surface of the clot was concave, broken in the centre, but smooth towards the circumference, where it was closely adherent to the margin of the opening in the carotid artery. The opposite side

of the clot was convex, and projected into the cavity of the cyst. On making a vertical section through the artery, the walls of the tumour, and the clot, the latter was seen to be composed of fibrinous laminæ. The edges of the opening in the vessel were found to be well defined and slightly everted ; the external coat of the artery was distinctly traced, and afterwards dissected from the middle coat quite up to the margin of the opening, where it termi-

CAROTID ARTERY AND CYST OPENED.



a. Cut end of internal carotid.
b. Opening in the vessel ; the three coats dissected to its edge.
c. Pneumogastric nerve.
d. Opening through the integument, muscle, and cyst.

nated abruptly, not being reflected on to the inner surface of the tumour. The coats of the vessel showed not the slightest dilatation at the part where it was connected with the tumour. The vagus nerve descended in front of the tumour on the outer side of the internal and common carotids. On coming into contact with the tumour it was much enlarged, and was firmly connected with the outer and middle layers of the wall of the cyst. The filaments of the nerve were spread out, and some of them were merely separated from the cavity of the cyst by the internal soft pulpy layer; the nerve passed off again from the lower part of the tumour. A portion of the spinal-accessory nerve was attached to the outer side of the tumour, and the superior cervical ganglion of the sympathetic was deeply imbedded in its posterior surface.

*Case II.**—A case in which fatal hæmorrhage occurred from the cyst of an abscess, was treated in the Royal Infirmary of Edinburgh, by Dr. Craigie, and is fully reported in the Medical Journal for Oct. 1837. The patient, a robust woman (æt. 28) was admitted August 4th, on account of a diffuse, hard, firm, and painful swelling, extending from the right ear downwards, over the angle of the jaw to the neck, below the right ramus. She was unable to open the mouth, protrude the tongue, or to depress the lower jaw, and she signified as well as she could, that the deglu-

* Abridged from the Edinburgh Medical and Surgical Journal.

tition of solids was impracticable; that of fluids was performed slowly, with difficulty and extreme pain. She had a good deal of fever; was bled from the arm once and again; had aperient medicine exhibited, and was directed to inhale the vapour of warm water. The swelling was poulticed. On the 6th, a quantity of thickened mucus, and some purulent matter and blood, were discharged from the fauces. On the 7th, the tumour at the angle of the jaw was found to be at one point soft and elastic. "A puncture was made by a common lancet in the softest and most prominent part, and some purulent matter, slightly coloured with brownish bloody fluid and a large slough of the subcutaneous adipose tissue, were discharged." Two hours afterwards, arterial blood was discharged from the mouth, to the extent of a pound and a half. Ice was applied, and a probe was passed to a considerable depth from the external opening towards the base of the tongue and tonsil. Another pound and a half of blood was lost in the evening; during the following night hæmorrhage occurred twice, and each time stopped spontaneously; but two pounds of blood were computed to have escaped. The pulse in the morning was feeble and thready. Countenance pale and clammy—great languor. She died on the morning of the 8th.

On examination, there were found some ragged openings by the anterior pillar of the velum palati. A foul ulcerated cavity occupied the place of the right tonsil. Below and behind this, on the right

side of the pharynx, in the cellular tissue between the mucous membrane, and the muscles of the neck, was an irregular cavity, about the size of a filbert and an inch deep. This cavity or abscess, the surface of which was soft, of a bluish-grey colour and irregular, communicated by means of two ragged irregularly circular openings, one small, about this size, O, the other fully half a square inch in diameter, with a large oblong, deep cavity, which extended down the neck to the level of the collar-bone. This cavity contained a considerable quantity of dark brown coloured softened blood, of a very fœtid odour, upon the removal of which, the surface appeared soft, pulpy, deep-brown, and very irregular. The cavity was in the adipose tissue forming the sheath of the vessels; and upon gently washing its surface, it was found that the external and internal carotid were denuded on their *posterior* and external aspect and exposed. The trunk of the eighth pair was also found lying exposed on the exterior side of the vessels, and the hypoglossal was found passing in on the outside of the external carotid artery. A female catheter was carried from the common carotid, through the external carotid, and a probe through the internal carotid. It was then found that the latter artery presented near its divarication from the common and external carotid, on the external lateral aspect, two ragged openings, one below, just before the bifurcation, and, strictly speaking, in the common carotid trunk, and another about two lines higher up the artery,

in the angle between it and the external carotid, and in the trunk of the internal carotid. The openings were ragged and irregular, and presented the aspect of having been made by ulceration or erosion of the coats, which externally were softened and denuded. This destruction and softening of the adipose sheath of the vessels, extended exactly an inch and five-eighths below the bifurcation, and for that space the artery was denuded and exposed.

Case III.—(Drawn up by the patient.)—S. B., ætat. twenty-four, medical pupil of University College, had been for some time troubled with a slight eruption on the skin, about two inches above the outer ankle of the right leg. Previous to this he was liable to be affected in a similar manner, in various parts of the body, more especially in spring, or when circumstances prevented his taking much exercise in the open air. In the commencement of December, 1840, while dissecting, he thinks it probable that from scratching the part, which itched very much, he may have introduced some cadaveric virus into the system. He was seized with rigors, nausea, intense pain in the head, and vertigo; together with a sensation of numbness in the right leg. In the course of a few hours the limb became painful, especially in the groin, and internal femoral region. On the following day all the symptoms became aggravated, with tenderness and swelling of the inguinal glands. Leeches were applied to the part, saline purgatives

administered, and a strict antiphlogistic regimen enjoined. By these means the inflammation of the glands disappeared, but without any abatement of the fever, while the pain at the inner part of the thigh became greatly increased, along with exquisite tenderness on pressure. Leeches and fomentations were applied repeatedly for three or four days. No alleviation, however, of the symptoms resulted, but the whole thigh became swollen, and the pain so intolerable as to demand the constant use of liq. opii sedat. The limb was kept in a bent position, as the most excruciating agony was caused by any attempt to extend it. Antim. tart. gr. one-fourth, and calomel gr. ij., were directed to be taken every four hours, while the anterior aspect of the limb from above the ancle to as far as the middle of the thigh was brushed over with a strong solution of nitrate of silver. After a few days more some obscure fluctuation was detected and an opening made by Mr. Liston about four inches above the knee, and over the situation of the vastus internus muscle. A small quantity of pus was evacuated, and some mitigation of suffering was the consequence. Bread poultices were applied, and matter discharged for nearly a fortnight. During this period the pus became several times tinged with blood, but from what source could not be satisfactorily ascertained. At this juncture, while on the night commode, nearly two pints of arterial blood issued suddenly from the abscess at the opening made to discharge its contents. Syn-

cope supervened, and the hæmorrhage ceased, compression being made at the same time upon the femoral artery, and maintained by compresses with a bandage applied tightly round the limb. In a day or two after this, from some motion of the body, there was a repetition of the hæmorrhage which was arrested by similar means as before. A third time the hæmorrhage returned, and to a considerable extent. By this time the pulse had become so feeble, and the system so exhausted, that any further loss of blood must almost inevitably be attended with a fatal termination. Under these circumstances it was resolved to tie the femoral artery, as the only means of preventing a recurrence of the hæmorrhage. From the situation of the abscess, together with the large quantity of blood lost in so short a time, it was inferred that the coats of the vessel had ulcerated, and its contents escaped into the cavity of the abscess, becoming mingled with pus. The artery was accordingly tied by Mr. Liston above the sartorius, and the incision closed by two sutures.* The operation checked all further hæmorrhage, while the strength was supported by bark, porter, and mutton-chops. The discharge now consisted of a mixture of pus and broken down coagulated blood. Between two and three weeks elapsed before the coagulum was entirely removed and the pus resumed its former appearance. The ligature came away on the nine-

* Mr. B. has omitted to state that Mr. Travers, sen., visited him at this stage of the case, and concurred in the practice pursued.

teenth day. In the meantime the tumefaction of the limb continued, and pus, burrowing under the fascia, at length made its appearance at the incision made for securing the artery, when it ceased to flow from the original opening, which soon closed up. The matter was more freely evacuated from the latter opening, in consequence of its depending position in respect to the abscess, as during the whole time the knee was kept above the level of the hip, which caused the pus to gravitate towards the groin. No unpleasant consequences resulted from its taking this new course; an equable pressure was maintained over the limb by a roller, and the discharge gradually diminished, and then ceased altogether. The swelling subsided, and the bandages were removed.

It was now the beginning of February, that is, two months from the commencement of the disease. As the limb had been constantly retained in a bent position, on account of the pain occasioned by its extension, the flexors became contracted, with some thickening of the tendons from deposition of fibrin. Very little motion was allowed in the joint, and extension could not be effected. Gentle attempts were made to extend the limb, but they were attended with considerable pain both in the knee and in the thigh. In four or five days afterwards, apparently from the irritation caused by these attempts at extension, the thigh became excessively painful, and was soon swollen to its former magnitude. A fresh collection of matter

was formed, first bursting the cicatrix of the original opening made for the old abscess, and then, after being partly evacuated by this course, making its way, as in the previous instance, to the second opening, through which the whole eventually drained off, and the part again healed.

In consequence of the repeated hæmorrhages and extensive suppuration for so long a period, the system was reduced to the lowest verge. The tongue became coated with brown sordes, there was constant thirst, the stomach began to reject almost all aliment, and the most acute pain was experienced on swallowing anything of a stimulating nature, or even warm liquids of whatever description. The pulse was rapid but exceedingly weak, and there was some dyspepsia; the bowels were constipated, and the bladder unable to discharge its contents. From the low state of the circulation and from constantly lying on the back, a large slough formed on the sacrum. On being turned on each side alternately, after the lapse of a few days, another small slough appeared opposite to the head of the right tibia, and then a third rather larger and a little below it. Counter-irritation by means of mustard cataplasms was employed over the region of the stomach, while mild broths and light farinaceous food, such as rice, sago, &c., were ordered. The bowels were unloaded every second day by enemata of soap and water, the urine drawn off every morning by the catheter, and the sores treated with washes of sulphate of zinc.

In a short time the symptoms assumed a more favourable aspect, the stomach became capable of bearing food, and about the middle of February so much strength had been regained as to admit of a removal from London to Hampstead. Great benefit was derived from the change; the appetite gradually returned, the general health improved rapidly, and the sloughs entirely healed.

Case IV.—In the museum of St. Thomas's Hospital there is a preparation of a portion of the femoral artery, with a small perforation in its coats, which in the present state of the vessel appears barely sufficient to admit the end of a common probe. This preparation used to be shown by the late Sir A. Cooper in his surgical lectures, and the history of it is this: the patient had suffered from disease of the hip joint, and the abscess connected with this took the femoral artery in its progress to the surface, causing ulcerative perforation of its coats, so that the patient died from hæmorrhage. Whether the abscess burst spontaneously or was opened, or whether the bleeding occurred at the time the puncture was made, or some time afterwards, I have not been able to ascertain.

The first of these cases was attended by very urgent symptoms. The history of the swelling induced a belief that it had been of an inflammatory nature modified by strumous diathesis. Its form, diffused in the neck, projecting into the

fauces, passing from under the jaw downwards, so as almost to touch the clavicle, and more especially its bulging backwards, confirmed this view. The distinct fluctuation on the posterior prominence, together with the youth of the patient, seemed to leave no doubt as to the nature of the case. It was very desirable that relief should be speedily afforded, and accordingly a puncture with a narrow knife was made without hesitation. Before this was resorted to, an examination had been instituted with all care and deliberation both by myself and by my former house-surgeon and very experienced assistant, Mr. Ancram. The whole swelling was anxiously manipulated to ascertain if pulsation existed, (for a hint had been given that the tumour might in some way be connected with the carotid,) but not the slightest pulsation could be perceived in any part, excepting in the course of the vessel. This has been well and satisfactorily explained by the post-mortem appearances, and the relations of the vessel to the tumour. The gush of arterial blood on the withdrawal of the knife, immediately revealed the nature of the case. The first object was of course to arrest temporarily the flow of blood, and this was quickly effected with the loss of an inconsiderable quantity. The next step was to stop, if possible, the further effusion into the cyst; the means of doing so, although difficult of execution under the circumstances, were soon decided upon by myself and colleague, Mr. Quain. By the time we met, however, the light began to fail, and

the operation (one of no slight moment under the most favourable circumstances) was of necessity deferred till the following day. The space for the incisions upon the carotid was necessarily much limited by the descent of the swelling; but by proceeding steadily and carefully, and with the able assistance of Mr. Quain and Mr. Morton, the vessel was exposed, though at a great depth from the surface. The fore part of the windpipe was the guide to the artery, and perhaps had the incision been made more towards the left side of the neck, along the border of the opposite sterno-mastoid, the dissection would have been more easily accomplished. The artery was tied close to its origin, which was perfectly unavoidable from the nature of the case. On looking at the sketch which accompanies this paper, it may be supposed that the carotid might have been tied anywhere betwixt its origin and an inch or more from this point; but the sketch, it is to be understood, was made after the investing condensed tissue and glands had been removed, and after the cyst had been slit up behind, and emptied thoroughly of its contents. During the life of the patient, too, the tumour had shrunk to half its original size; yet at the post mortem dissection the lower margin was found to extend to within half an inch of where the ligature still remained attached.

The examination fully confirmed the view I had taken of the case, as explained before com-

mencing the operation of tying the carotid. The position and form of the cyst, the nature of its lining membrane, the absence of lamellated coagula, the nature of the opening in the artery, (the three coats being traceable to the margin,) all show that the communication with the vessel was secondary, and consequent on the stretching and denudation of its parietes by the pressure of subjacent matter. It was, in point of fact, a scrofulous abscess with ulceration of a large vessel, and consequent effusion of blood into the cyst—" a variety of false aneurism," of a very unusual kind, and to which the attention of surgeons has not yet been sufficiently directed.

The case quoted from the Edinburgh Medical and Surgical Journal possesses great interest, and bears on that now commented upon. It is described by the learned editor as " an abscess of the adipose cushion of the vessels." The openings in the artery, it is strange enough, took place in the same aspect, and nearly in the same spot as in the case just spoken of. The termination was more rapid; this was owing, no doubt, to the complication of foul ulcers in the fauces. It is to be regretted that a chance was not given to the patient by ligature of the carotid, though the prospect of a favourable termination was but slight.

In the third case, had the communication between the vessel and the cyst of the abscess occurred a few days earlier, the diagnosis would necessarily have been more difficult, and the circumstances might have been misunderstood.

Similar cases to those related above, have no doubt occurred to other surgeons, in their public or private practice; indeed I know that they have, but they are not recorded.

APPENDIX.

Professor Syme of Edinburgh has kindly furnished me with the following case.

Case V.—Charles Macqueen, æt. 18, a watchmaker, admitted March 7th, 1842; under the care of Mr. Syme, with a large abscess in the lower end of the left thigh.

About three months ago he caught a severe cold, a few days after which he suffered from a dull pain and stiffness of the left ham.

By being much exposed to cold and wet on the 1st of January, his chest affection (which appears to have been an attack of bronchitis) was much increased, and the parts around the ham and knee became swollen, hard, and painful. Poultices were applied, and a large collection of matter has since gradually formed around the end of the thigh bone. This, on his admission into the hospital, was pointing a little above the inner condyle, two days after which an opening was made in that situation, and six or eight ounces of greenish, fœtid pus evacuated. Three days afterwards, the matter not having free exit, a counter-opening was made a little above the outer condyle.

After making the first incision, Mr. Syme introduced his finger into the opening to ascertain whether any disease of the bone existed. There was found to be no affection of the femur, but the finger passed between the popliteal vessels and the bone, the artery being felt lying bare, and pulsating external to the finger.

From these openings there continued for a week a copious and fœtid discharge. At the end of that time he again suffered from

pain in the right side of the chest, which was not relieved by cupping and the application of sinapisms. He became emaciated, had no appetite, and perspired copiously during the night. On account of his chest affection, he was on the 24th sent to the medical wards of the hospital, from which, however, he was dismissed on the 26th, being very anxious to return home.

He remained much in the same state for some days, with the same copious discharge from the thigh, to which poultices were applied.

On the 31st, about two o'clock P. M., whilst lying quietly in bed, a sudden gush of blood took place from the opening in the ham, from which, before assistance was procured, he had lost three pounds of blood. A surgeon was called, who stuffed the wound in the ham with lint. The patient was in a state of syncope, from which he slowly recovered under the administration of stimuli.

About three o'clock (two hours afterwards) the hæmorrhage recurred to the extent of a pound, but was soon arrested by pressure on the femoral artery in the groin. On being called to the patient at half-past three, I found him in a collapsed condition, and the pulse small and weak, although six ounces of brandy had been given him since the second occurrence of the hæmorrhage. I immediately sent for Mr. Syme, and easily restrained the hæmorrhage by slight pressure of the thumb on the artery in the groin. Not being able to find Mr. Syme, I then proceeded to apply a ligature to the femoral artery, pressure being meanwhile applied to the vessel in the middle of the thigh. The operation was performed in the usual manner in the triangular space. The parts were nearly exsanguine, and he did not lose two drops of blood during the operation.

The patient rallied a little during the night, but again sunk, and died next afternoon at five o'clock. It is unnecessary to mention that no bleeding took place after the application of the ligature.

On examining the state of the artery on the day after death, the hæmorrhage was found to have proceeded from a small circular ulcerated opening on the anterior surface of the vessel, in

the upper part of the cavity of the abscess, about half an inch above where the artery entered the popliteal space.

A clot had formed for about half an inch above, and a quarter of an inch below the point where the ligature had been applied.

Richard J. Mackenzie, *House Surgeon.*

Royal Infirmary, April 8th, 1842.

Case VI., furnished by the kind permission of Sir James Macgregor, Bart.

Reg.	Name.	A .	Admitted.	Discharged, Died.	In hospital.	Disease for which admitted.
97th.	Thomas Connolly.	21 years.	7th December, 1841.	29th December, 1841.	28 days.	Cynanche Tonsillaris.

On the 7th December, 1841, was admitted into Fort Pitt General Hospital, private T. Connolly, 97th regiment, a man who had hitherto enjoyed excellent health. On admission he complained of the usual symptoms of cynanche tonsillaris :—severe headache; and painful and difficult deglutition : there was also considerable redness and tumefaction of both tonsils and of the *back part of the pharynx.*

In a few days these symptoms were removed by the usual treatment; and were then succeeded by a slight attack of bowel complaint, which also was speedily overcome. 18th December, he complained of some soreness on the left side of his throat, but no appearance of disease could be detected. On the 20th there was pain and stiffness of the muscles of the left side of the neck; and a small circumscribed abscess (which was afterwards opened) was observed over the angle of the left inferior maxilla. 21st. He experienced acute pain, referred to the right ear and the deep-seated muscles of the neck; but no redness or tumefaction was noticed. 22nd. The pain in the neck was much alleviated. 28th. He suffered much from pain in the right side of the neck, beneath the mastoid process, in which situation there was a good deal of diffused swelling. He rested badly at night, and was frequently observed to pick his nose, from which there occurred,

now and then, slight hæmorrhage. Very little pain in deglutition was experienced ; nor could any appearance of disease in the tonsils or pharynx be discovered. 29th December, at eight o'clock, P.M., after no unusual exertion, profuse hæmorrhage, of a scarlet colour, gushed from his nostrils and mouth, and in a few minutes he expired. In the morning of this day he expressed himself much better. The tumefaction in the neck had nearly disappeared, and he experienced no uneasiness in this situation, nor in swallowing. (About eight pounds of blood were lost.)

Necropsy, eighteen hours after death. (The arterial system was injected from the aorta.)

On the right side, close to the base of the cranium, and in front of the vertebral column, was found an abscess, of about an inch in diameter and three inches in length ; and containing coagulated blood, and numerous fragments of the materials injected. [It extended downwards behind the pharynx, the internal carotid, jugular vein, and par vagum.] The internal carotid artery communicated with this abscess by an opening capable of admitting a small bougie ; and, on the other hand, the abscess opened into the posterior part of the pharynx on a level with the inferior turbinated bone of the nose, and behind the Eustachian tube. Its walls were of considerable thickness, and the adjacent lymphatic glands were very much enlarged. The small abscess over the angle of the left maxilla had no connexion whatever with the larger one through which the hæmorrhage occurred ; neither had the abscess any connexion with the tonsils, which appeared quite natural.

Case VII., kindly communicated by Professor William Fergusson, of King's College.

"Between three and four years ago, in my practice in Edinburgh, I was called into consultation with a professional friend, to see a child about nine years of age, which had suffered from many of the sequelæ of scarlatina, with whose nature in that city, you are of course as familiar as I am. With other ailments, there had been inflammation and suppuration of some glands of

the neck, and my friend in proper time opened an abscess. A few days afterwards he was called suddenly to see his patient, in consequence of a gush of blood from the wound. I was also immediately sent for, but found that by the application of cold and slight pressure, the bleeding had ceased. I examined the little wound, but saw nothing to induce me to adopt any other plan of treatment. Within forty-eight hours, I was again called for a similar occurrence, yet I did not suppose that the blood came from any other source than some superficial vein—probably the upper part of the external jugular, to which the opening had been near,—and accordingly, I did not contemplate any such proceeding as that of placing a ligature on the carotid, more particularly as the bleeding, when I arrived, had again ceased, and the patient was exceedingly exhausted from other causes. Within the next twenty-four hours hæmorrhage again took place, and to such an extent and so rapidly, that the child died almost instantaneously. I examined the neck afterwards, and found that ulceration had seemingly occurred in the cyst of the original abscess; that all the glands around were more or less affected, and that the ulcerative process had in a great degree destroyed one of them, and opened the lingual artery near its origin from the external carotid, by a point not larger than would admit a common probe."

Case VIII.—My attention was drawn to the following case by the perusal of an excellent Essay on " Aneurism about the root of the neck," by M. Robert. The case itself is given by M. Breschet in a note to his translation of Hodgson on the Diseases of the Arteries and Veins.

"Les autres lésions des artères qui ne sont pas accompagnées de dilatation, devraient être séparées des anévrisms et rangées parmi les maladies avec lesquelles elles auraient le plus de ressemblance. Les anévrismes faux primitifs, par exemple, trouveraient tout naturellement leur place parmi les plaies. Les transformations stéatomateuses des artères avec effusion du sang dans le tissu cellulaire et formation d'une tumeur, seraient classées parmi les dégénérescences de tissu, et il est une lésion des artères

eonsistant en une ouverture plus ou moins régulière, faite, pour ainsi dire, eomme avee un emporte-pièee, et dont je vais donner un exemple, que l'on assoeierait aux perforations, genre de maladies trop peu étudié, et que les divers tissus présentment fréquemment.

" Le fait que je viens de eiter a été observé sur une fille de dix ans et demi, maigre et grêle, d'un tempérament nerveux. Vers la fin du mois de Novembre 1811, sa santé, jusque là assez bonne, se dérangea. Cette jeune personne se plaignit de malaises et de fatigues ; à ees symptômes se joignit bientôt une somnolenee très-forte, et tous les earaetères d'une fièvre eommunément appelée *atacto—adynamique* très-intense se développèrent. Un médeein fut appelé, et eombattit avee sueeès la maladie. Peu à peu les aeeidens se dissipèrent, et pendaut la eonvaleseenee, trois dèpôts parurent sueeessivement, l'un à la nuque, l'autre au milieu du dos, et le troisième sur la faee postérieure du saerum. Ce n'est qu'alors que les parens s'aperçurent d'une tumeur qui existait à la partie antérieure et supérieure du thorax, s'étendant jusque sur le eôté gauehe du eou. Un étudiant en médeeine qui pansait la jeune fille, n'avait point eneore vu eette tumeur ; il apprit de la sœur de la malade que deux jours auparavant, eelle-ei portait souvent la main sur ee lieu, et qu'elle se plaignait. On examina la partie, et l'on y reeonnut un léger gonflement. La tumeur parut s'étendre de bas en haut du sternum et du cartilage de la seconde eôte gauehe à l'apophyse mastoïde, suivant exaetement la direetion du musele sterno-mastoïdien. Elle représentait un eône dont la base, un peu aplatie, offrait à-peu-près un pouee et demi de largeur. Cette tumeur était fluetuente, sans changement de eouleur à la peau ni augmentation de ehaleur, ne diminuant point par la pression, ne causant pas non plus de douleur marquée et ne présentant aueun battement. D'après tous ees phénomènes et les trois abeès qui s'étaient montrés, l'étudiant en médeeine ne douta pas que ee ne fût un quatrième apostème. Considérant la rapidité avee laquelle s'était développée la tumeur, la grand laxité des parties où elle se trouvait située, eraignant une énorme dénudation, il regarda eomme très-néeessaire de praetiquer une ouverture. Un bistouri fut plongé dans la tu-

meur, d'où il s'échappa aussitôt un jet de sang noir, dont la force diminua successivement jusqu'à l'entière évacuation du fluide retenu dans le foyer. Une liqueur légèrement irritante fut poussée dans la poche, et y séjourna quelques minutes, pour y provoquer une inflammation adhésive. Ce second liquide écoulé, la petite plaie fut bouchée par un bourdonnet de charpie, et l'èlève exerca sur les parties une compression qui devait, selon lui, déterminer l'adhérence des parois du kyste. Nul accident ne survint d'abord; mais, pendant la nuit, le sang sortit par la plaie malgré le tamponnement, et imbiba les différentes pièces de l'appareil. Le lendemain, après la levée du bandage, on ne vit s'écouler par la plaie que quelques gouttes de sang, ce qui fit penser que, pendant toute la nuit, ce liquide, n'avait fait que sourdre de la sorte. On fut étonné de trouver le foyer distendu de nouveau par un liquide, sur la présence duquel la fluctuation ne laissait point de doute. Aucune pulsation ne se faisait remarquer, ce qui empêcha de soupçonner l'existence d'un anévrisme. Le cas parut cependant embarrassant, et l'on réclama les conseils de M. Dupuytren. En attendant la visite de ce chirurgien, la partie fut recouverte de compresses imbibées d'une décoction de noix de galle. Le lendemain le practicien célèbre que je viens de nommer examina la maladie, en découvrit de suite la nature, en fit connaître aux parens toute la gravité, recommanda la plus grande prudence, et se prononça contre toute espèce d'operation. C'est alors que je vis la malade. La tumour laissait apercevoir de légères pulsations, et je ne doutai point, ainsi que M. le professeur Dupuytren l'avait annoncé, qu'elle ne fût formée par du sang artériel. Cette tumeur alla toujours en augmentant, les pulsations devinrent plus manifestes, des accidens nerveux parurent, la respiration se fit laborieusement, les plaies résultantes de l'overture des abcés prirent un mauvais caractère, les forces déclinèrent sensiblement, la bouffissure se manifesta au visage, deux jours après elle disparut, et le même soir la mort vint frapper la malade.

"A l'examen du cadavre, la tumeur resemblait à un ovoïde, dont la grosse extrémité, tournée en bas, correspondait á la partie antérieure-supérieure gauche du thorax, depuis le sternum

jusque sur le cartilage de la troisième côte, et sur cette côte elle-même. La petite extrémité, tournée en haut un peu obliquement de dedans en dehors, affectait la direction du muscle sterno-mastoïdien, et s'étendait presque jusqu'à l'apophyse-mastoïde. A sa partie môyenne, cette tumeur avait environ deux pouces et demi de largeur.

" La dissection de la tumeur fut fait avec le plus grand soin par MM. Joleaud, Al. Lebreton et moi. Pour mieux reconnaître d'où venait le sang qui la formait, je fis une ouverture à l'abdomen, j'incisai l'aorte pour y introduire un tube à l'aide duquel je poussai de bas en haut une injection colorée. Aussitôt la tumeur augmenta de volume, ce qui ne permit plus de douter de sa communication avec une artère. La tumeur, dépouillée de ses enveloppes extérieurs, parut formée de deux parties, l'une placée hors de la poitrine, et l'autre renfermée dans cette cavité, mais communiquant ensemble par une ouverture au sternum.

" La tumeur externe était recouverte en devant par la peau, les muscles thoraco-facial, sterno-huméral et sterno-mastoïdien. En arrière, elle était appuyée sur le sternum, les cartilages des premières côtes, les muscles intercostaux, l'articulation costo-claviculaire, et plus haut sur les muscles sterno-thyroïdien, sterno-hyoïdien, sterno-trachélien, et l'artère carotide du côté gauche. Le muscle sterno-mastoïdien du côté droit était désorganisé, et pénétré d'une si grand quantité de sang, qu'il offrait quelque analogie avec le tissu spongieux de l'urètre : l'on ne reconnaissait plus ses fibres charnues. L'enveloppe immédiate de cette tumeur était formée par du tissue cellulaire condensé.

" La portion interne ou la partie de la tumeur renfermée dans la poitrine, s'étendait de la face postérieure de l'articulation sterno-claviculaire gauche à la crosse de l'aorte ; elle occupait le médiastin, et s'étendait transversalement des cartilages des côtes gauches jusqu'à leurs articulations avec ces os. Sa partie déclive était arrondie, et ne dépassait pas inférieurement la crosse de l'aorte. On voyait la plèvre se porter de ce vaisseau sur la tumeur, et la recouvrir de chaque côté pour se réfléchir ensuite sur les parois du thorax. J'incisai la tumeur sur sa face antérieure, et je trouvai sa cavité remplie par des caillots de sang

par un liquide semblable à de la lie de vin, et par la matière de l'injection. Nous observâmes qu'il n'y avait pas de ces couches concentriques qui se trouvent ordinairement appliquées sur les parois des tumeurs anévrismales.

"Ces matières enlevées, nous aperçûmes l'ouverture du sternum qui faisait communiquer ensemble les deux parties de la tumeur. Cet os était très-altéré, et tombait par parcelle au moindre effort. Dans le fond de la seconde partie de la tumeur, on distinguait la face antérieure de l'aorte sur laquelle cette tumeur reposait. Ce gros vaisseau n'offrait aucune dilatation de ses membranes; il avait son calibre ordinaire, mais présentait une ouverture régulière ayant une ligne et demie de longueur sur une ligne de largeur. Ce pertuis correspondait à la face antérieure de la courbeur aortique, tout prés du tronc brachio-céphalique.

"Cette histoire démontre que la science est hérissée de difficultés, et sous le rapport du diagnostic, qui quelquefois est très-obscur, et sous le rapport du traitement, qui, presque toujours, est impuissant. Je ferai encore remarquer que, dans ces cas de tumeurs sanguines communiquant avec la cavité d'une artère par une très-petite ouverture, les pulsations isochrones à celles du pouls sont insensibles dans les premiers temps de la maladie, lorsque surtout la tumeur est encore placée profondément dans l'épaisseur de nos tissus, et que dans la dernière période du mal, le mouvement des parties affectées est moins une pulsation distincte qu'une espèce de vibration ou de trémoussement. Ce phénomène mérite toute l'attention des gens de l'art; il peut éclairer leur conduite, et leur faire juger à *priori* si la maladie offerte à leur observation est une tumeur sanguine produite par la dilatation du tube artériel, ou par l'érosion d'un point des parois de ce canal."

P.S. The foregoing paper contains a series of cases which are believed to bear on each other, and of a nature not generally recognised by the profession. That the disease, of which they are instances, is not true aneurism, there will remain it is presumed little doubt on the mind of any one who peruses the paper attentively.

In some of the instances it was ascertained by careful dissection. 1st. That the implicated vessel lay on the surface of the tumour, and there is reason to suppose that this arrangement obtained in others. 2ndly. That the opening or openings in the arterial trunk communicating with the cyst, were small, and, as it were, punched out from all the coats. And, 3rdly, That the interior of the cavity was not lined by lamellated coagula. Several of the cases occurred in young patients, in whom true aneurism is, to say the least, exceedingly rare; and it is not impossible that when aneurism has been supposed to exist at an early age, the disease has, in truth, originated, as in the cases above recorded, in abscess. It has been asked why purulent matter was not discovered on puncturing the swelling, in the first case narrated above. The answer is short: blood had been freely admitted into the cyst for some days previously, and it is well known to surgeons that even a very slight admixture of blood colours pus and thoroughly changes its appearance; and besides, if there was blood injected from the artery at each stroke of the heart, there was also blood returned to it at each pause, so that the cavity was soon washed out.

The Appendix confirms the views taken in the paper, by a mass of additional evidence, freely offered by men of deserved eminence, since it was read before the Medical and Chirurgical Society.

A comparison of the cases there narrated, with those originally detailed by the Author, leaves no doubt of the exact similarity in the nature and causes of the obscure and formidable disease of which they are instances.

Attention is particularly directed to the concluding remarks of M. Breschet, which exhibit a profound view of the phenomena of such maladies, and a candour and liberality which truly adorn scientific reputation.

R. L.

5, Clifford Street,
August 1st, 1842.

Since this paper was sent to press, my colleague, Mr. Quain, has been good enough to furnish the following case of *acute* abscess communicating with an artery.

C. S., æt. sixty-three, of delicate constitution, admitted 11th of August, 1842.

He states, that having some days ago applied a rancid plaster to a sore on the thumb of his right hand, he soon felt severe pain, and the part began to swell. Soon after, the swelling involved the entire hand, and red lines extended from the thumb along the forearm and above the elbow.

On admission, the back of the hand and forearm are found to be swollen, œdematous, and of a deep red colour, and there is some vesication on the wrist.

The general symptoms set down in the case-book may be abridged into the word "typhoid."

The daily reports between this period and the 17th, show that partial relief was afforded by short incisions through the integument with fomentations, and that the health was improved under the administration, in the first instance, of aperient with saline medicines, and afterwards of quinine and mild stimulants.

Aug. 17. The swelling of the hand and forearm have increased, especially at the back part; and the surface is of a dark colour at the outer side of the wrist.

A small livid spot of integument had been noticed near this part at a former visit.

18th. The tumefaction of the limb is augmented, and fluctuation is distinct. The swelling in front, towards the outer side of the wrist, or rather of the lower end of the forearm, is prominent, and the epidermis over it is detached in consequence of previous vesication. On carefully examining the part, Mr. Quain found pulsation over the entire surface. He stated it to be aneurysmal and connected with the radial artery.

An incision was made on the back of the hand, and matter flowed freely. A dresser is directed to remain in attendance during the night, lest hæmorrhage should occur. Soon afterwards the case was seen by Mr. Liston, and he agreed in the

opinion of Mr. Quain as to the nature of the enlargement on the wrist. A slight oozing of blood, which took placc towards morning, was at once arrested by means of a pieee of lint and a single turn of roller lightly applied.

Aug. 19. The tumour is more pointed, and the skin over its middle has beeome pulpy.

It was now determined that the removal of the limb was the only operation the circumstances of the ease admitted of, and the amputation was at once performed.

Mr. Quain made two flaps, one anterior and the other posterior, immediately above the clbow-joint. Since then, thc patient has steadily advaneed to recovery. The ligature came away from the brachial artery on the 4th of September, sixteen days after the operation.

On examining the amputated part, pus was found diffused beneath the fascia as well as immediatcly under the integument of thc back of the hand and forearm. It was likewise lodged in smaller quantity beneath the palmar fascia, and among the superficial musclcs in front of the forearm as well as in the joints of the wrist and the earpus. Attention being directed to the radial artery, on raising the vessel it was found to be laid on thiek pus ; some of that fluid was also in front and at thc sides of the vessel for some distanee up the forearm.

The disseetion was discontinued for the present in consequence of thc tumour being found very soft and pulpy. It was thought best to place it in strong spirit for somc days, and for this purpose, the neighbouring integument and muscles, with a portion of thc vessel above and below thc tumour, were removed from thc bone.

On resuming the examination of the parts, the tumour is found to eonsist of blood coagulated, and in the interior of it the artery is eompletely separated into two parts. The upper division of the vessel is somewhat cxpanded or dilated at the end ; and the lower division (for the length of half an ineh) is thickened by means of blood contained between the tunies. The ends of both parts are uneven or ragged at the edges.

It may be proper to add, that, according to the patient's statement, there was no swelling of the wrist, nothing the matter with it, three days before his admission into the hospital.

The preparation is in the anatomical museum of University College.

It ought to have been mentioned that the preparation obtained from the subject of Case I., is also to be found in the same collection.

LONDON:

PRINTED BY G. J. PALMER, SAVOY STREET.